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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/382,929	08/25/1999	PAUL A. FARRAR	303.603US1	5871

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EXAMINER

GRAYBILL, DAVID E

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 06/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/382,929

Applicant(s)

FARRAR, PAUL A.

Examiner

David E Graybill

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-10, 12-15, 18-23, 31-36 and 38-46 is/are pending in the application.

4a) Of the above claim(s) 15 and 36 is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 1-6, 8-10, 12-14, 18-23, 31-35 and 38-46 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.

- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3,4,8.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claims 15 and 36 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13, 32 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 13, the term, "low temperature" is a vague relative term of degree for which the disclosure provides no clear standard for measuring the degree, or it is not apparent if the degree is limited by the disclosure, and one of ordinary skill in the art in view of the prior art and the status of the art would not otherwise be reasonably apprised of the scope of the term.

In claim 32, there is insufficient antecedent basis for the terms, "the air-bridge structure," and, "the same material as the air-bridge structure." In particular, the claim 31 term, "an air bridge structure," is not sufficient antecedent basis because it is recited as an intended structure, and not positively recited as a structural limitation.

In claim 35, there is insufficient antecedent basis for the phrase, "the insulator."

Claims 22 and 35 have not been rejected over the prior art because, in light of the 35 U.S.C. 112 rejections supra, there is a great deal of confusion and uncertainty as to the proper interpretation of the limitations of the claims; hence, it would

Art Unit: 2827

not be proper to reject the claims on the basis of prior art. As stated in *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962), a rejection should not be based on considerable speculation about the meaning of terms employed in a claim or assumptions that must be made as to the scope of the claims. See also MPEP 2173.06.

In the rejections *infra*, reference labels are generally recited only for the first recitation of identical claim language.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Art Unit: 2827

Claims 1, 4, 5, 6, 8-10, 12-14, 18, 20, 21, 23 and 31-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Juengling (6333556).

At column 1, lines 31-49, column 3, line 17 to column 4, line 62, column 5, lines 18-30, column 6, lines 4-44, column 7, lines 13-16, and column 7, line 47 to column 8, line 19, Juengling teaches all the essential elements of claims 1, 4, 5, 6, 8-10, 12-14 and the following:

18. An integrated circuit assembly comprising: an electronic chip 12g; a support structure 34, 70, 72, 74, 76, 78 mounted on the electronic chip, the support structure having an interstice and a vaporization temperature; a material [carbon] filling the interstice, the material having a vaporization temperature that is less than the vaporization temperature of the support structure; a connective structure 32g mounted on the support structure; and a conductive structure 50, 52, 54, 56, 58, 60, 62, 64 capable of coupling the electronic chip to the connective structure, the conductive structure embedded in the support structure and the material.

20. The integrated circuit assembly of 18, wherein the support structure is fabricated from silicon dioxide.

21. The integrated circuit assembly of 18, wherein the support structure is a ribbed structure.

Art Unit: 2827

23. The integrated circuit assembly of 18, wherein the connective structure is a controlled collapse chip connection (C4) structure.

31. An integrated circuit assembly comprising: an electronic chip; and a post structure 52, 60, 72, 76 mounted on the electronic chip and capable of protecting an air-bridge structure and supporting a C4 structure.

32. The integrated circuit assembly of 31, wherein the post structure is fabricated from the same material as the air-bridge structure.

33. The integrated circuit assembly of 31, wherein the post structure is mounted on an insulating base formed on the electronic chip.

34. The integrated circuit assembly of 31, wherein the post structure is fabricated from an insulator.

To further clarify the teaching that the post structure is capable of protecting an air-bridge structure and supporting a C4 structure, and the connective structure is a controlled collapse chip connection (C4) structure, these statements of intended use do not result in a structural difference between the claimed product and the product of Juengling. In addition, because the product of Juengling is inherently capable of being used for the intended uses, the statements of intended use do

Art Unit: 2827

not patentably distinguish the claimed product from the product of Juengling. Claims directed to product must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Juengling (6333556).

Juengling is applied for the same reason it was applied to claim 1.

However, Juengling does not appear to explicitly teach the following:

2. The integrated circuit assembly of 1, wherein the electronic chip is a memory chip.

3. The integrated circuit assembly of 2, wherein the memory chip is a dynamic random access memory chip.

Nevertheless, official notice is taken that a dynamic random access memory chip is well known. Furthermore, it would have been obvious to substitute the well known chip for the chip of Juengling because it would provide a chip.

Claims 38-42 and 44-46 are rejected under 35 U.S.C. 102(e) as being anticipated by Clevenger (6255712).

At column 4, line 29 to column 6, line 39, Clevenger teaches the following:

38. An integrated circuit assembly comprising: an electronic chip 0 including a plurality of electronic devices 2; a plurality of conductive segments 8 capable of interconnecting the plurality of electronic devices, each of the plurality of conductive segments having a surface area in contact with a material having a dielectric constant of about 1; a C4 connection 13 coupled to the electronic chip through the plurality of conductive segments; and a substrate 15 coupled to the C4 connection.

39. The integrated circuit assembly of 38, wherein the integrated circuit assembly is hermetically sealed.

40. The integrated circuit assembly of 39, wherein the integrated circuit assembly is back filled with helium.

41. The integrated circuit assembly of 39, wherein the integrated circuit assembly is back filled with a helium rich gas mixture.

42. The integrated circuit assembly of 38, wherein the material is air.

44. The integrated circuit assembly of 38, further comprising a heat sink 19 coupled to the electronic chip.

45. The integrated circuit assembly of 44, wherein the integrated circuit assembly is hermetically sealed.

46. The integrated circuit assembly of 45, wherein the integrated circuit assembly is back filled with helium.

To further clarify the teaching of a C4 connection 13 coupled to the electronic chip through the plurality of conductive segments, it is noted that this statement of intended use of the connection 13 does not result in a structural difference between the claimed product and the product of Clevenger. Further, because the product of Clevenger is inherently capable of being used for the intended use, the statement of intended use does not patentably distinguish the claimed product from the product of Clevenger.

Claims 19 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clevenger (6255712).

Clevenger does not appear to explicitly teach the following:

19. The integrated circuit assembly of 18, wherein the electronic chip is a dynamic random access memory chip.

43. The integrated circuit assembly of 38, wherein the material is a foam.

Nonetheless, official notice is taken that a random access memory chip is a well known chip. Moreover, it would have been

Art Unit: 2827

obvious to substitute the well known chip for the chip of Clevenger because it would provide a chip.

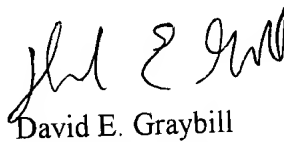
Also, at column 1, lines 30-38, Clevenger teaches that a foam material is well known. Furthermore, it would have been obvious to substitute the well known foam material for the material of Clevenger because it would provide a material.

The prior art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions similar to the instant invention.

Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Customer Service whose telephone number is 703-306-3329.

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (703) 308-2947. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is 703/3087724.



David E. Graybill
Primary Examiner
Art Unit 2827

D.G.
10-Jun-02

Application/Control Number: 09/382,929

Art Unit: 2827

Page 11